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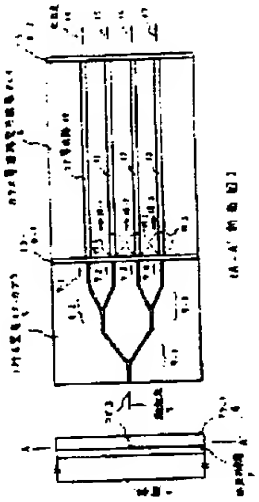
TITLE : MULTI-WAVELENGTH GLASS WAVEGUIDE LASER ARRAY



ABSTRACT : PURPOSE: To obtain multi-wavelength laser light by using a compact constitution by projecting excitation light to a glass waveguide type resonator array composed of glass having specific different compositions through an optical star coupler.

CONSTITUTION: A low refractive-index layer 2 is formed onto a substrate 1, core waveguides 10-13 in which P_2O_5 or Al_2O_3 of different loading is contained in SiO_2 group glass including a rare earth are shaped onto the layer 2, a clad 4 having a low refractive index is formed onto the core waveguides, and mirrors 8-1, 8-2 are shaped on both end face sides of the waveguides 10-13, thus forming a glass waveguide type resonator array 6. A 1-to-4 type optical star coupler 5 is constituted in such a manner that a core 3 is shaped onto the low refractive-index layer 2 on the substrate 1 and the clad 4 is formed onto the core 3. Excitation light 7 projected to the input side core 3 of the 1-to-4 type optical coupler 5 is divided equally by Y branches 9-1-9-3, optical signals 7-1-7-4 are transmitted over the core waveguides 10-13 of the resonator array 6, a resonator is organized of the mirrors 8-1 and 8-2, and the optical outputs 14-17 of continuous oscillation light having different wavelength are emitted.